

What is claimed is:

1. An optical service agent for managing connection establishment and related services for a user in an optical communication system, the optical  
5 service agent comprising:  
a user-to-network interface (UNI) for interfacing with an optical communication network;  
a peer-to-peer interface for interfacing with peer users; and  
optical service logic for interacting with the optical communication  
10 network via the UNI and with the peer users via the peer-to-peer interface for managing said connection establishment and related services for the user.
2. The optical service agent of claim 1, wherein the optical communication network comprises an automatically switched  
15 optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.
3. The optical service agent of claim 1, wherein the optical service logic comprises:  
20 negotiation logic for negotiating various connection and connection-related services on behalf of the user.
4. The optical service agent of claim 1, wherein the optical service logic comprises:  
25 modeling logic for modeling at least one connection for the user.
5. The optical service agent of claim 1, wherein the optical service logic comprises:  
reservation logic for reserving connection and connection-related  
30 services for the user.

6. The optical service agent of claim 1, wherein the optical service logic comprises:

connection establishment logic for establishing a connection for the user.

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7. The optical service agent of claim 3, wherein the negotiation logic comprises at least one of:

logic for obtaining quotes for communication services from one or more providers;

10 logic for placing a connection out to bid by one or more providers and managing the bidding process for the connection;

logic for negotiating costs and other parameters for a connection with one or more providers;

15 logic for buying connection and connection-related services from one or more providers;

logic for selling connection and connection-related services; and

logic for re-selling connection and connection-related services.

8. The optical service agent of claim 1, wherein the optical service logic comprises:

20 aggregation logic for aggregating multiple optical communication paths over a connection.

9. The optical service agent of claim 4, wherein the modeling logic comprises at least one of:

25 logic for interacting with the optical communication network to obtain information relating to a portion of a connection traversing the optical communication network;

30 logic for interacting with multiple providers to obtain multiple quotes for communication services;

logic for negotiating with one or more providers to obtain favorable terms for the user;

logic for interacting with the peer users via the peer-to-peer interface for obtaining information relating to a portion of a connection beyond the optical communication network;

5 logic for compiling information relating to a portion of a connection on a user side of the optical communication network; and

logic for presenting a modeled connection to the user in a form that is convenient for the user to evaluate the connection.

10 10. The optical service agent of claim 5, wherein the reservation logic comprises at least one of:

logic for interacting with the peer users via the peer-to-peer interface in order to reserve communication services provided by the peer users; and

15 logic for interacting with the optical communication network via the UNI in order to reserve communication services provided by the optical communication network.

20 11. The optical service agent of claim 1, wherein the optical service logic comprises bandwidth determination logic for determining bandwidth requirements for a connection.

12. The optical service agent of claim 6, wherein the connection establishment logic comprises at least one of:

logic for interacting with the optical communication network in order to set up a communication path having specific attributes; and

25 logic for interacting with the peer users via the peer-to-peer interface in order to set up a communication path end-to-end across the optical communication network.

13. A device comprising:  
a user application requiring communication services from an optical  
communication network; and  
an optical service agent for managing connection establishment and  
5 related services for the user application.

14. The device of claim 13, wherein the optical service agent comprises:  
a user-to-network interface (UNI) for interfacing with the optical  
communication network;

10 a peer-to-peer interface for interfacing with peer users; and  
optical service logic for interacting with the optical communication  
network via the UNI and with the peer users via the peer-to-peer interface for  
managing said connection establishment and related services for the user  
application.

15 15. The device of claim 14, wherein the optical communication network  
comprises an automatically switched optical/transport network (ASON), and  
wherein the UNI comprises an ASON UNI.

20 16. The device of claim 14, wherein the optical service logic comprises:  
negotiation logic for negotiating various connection and connection-  
related services on behalf of the user application.

25 17. The device of claim 14, wherein the optical service logic comprises:  
modeling logic for modeling at least one connection for the user  
application.

30 18. The device of claim 14, wherein the optical service logic comprises:  
reservation logic for reserving connection and connection-related  
services for the user application.

19. The device of claim 14, wherein the optical service logic comprises:

connection establishment logic for establishing a connection for the user application.

20. The device of claim 16, wherein the negotiation logic comprises at least one of:

logic for obtaining quotes for communication services from one or more providers;

logic for placing a connection out to bid by one or more providers and managing the bidding process for the connection;

logic for negotiating costs and other parameters for a connection with one or more providers;

logic for buying connection and connection-related services from one or more providers;

logic for selling connection and connection-related services; and

logic for re-selling connection and connection-related services.

21. The device of claim 14, wherein the optical service logic comprises: aggregation logic for aggregating multiple optical communication paths over a connection.

22. The device of claim 17, wherein the modeling logic comprises at least one of:

logic for interacting with the optical communication network to obtain information relating to a portion of a connection traversing the optical communication network;

logic for interacting with multiple providers to obtain multiple quotes for communication services;

logic for negotiating with one or more providers to obtain favorable terms for the user;

logic for interacting with the peer users via the peer-to-peer interface for obtaining information relating to a portion of a connection beyond the optical communication network;

logic for compiling information relating to a portion of a connection on a user side of the optical communication network; and

logic for presenting a modeled connection to the user in a form that is convenient for the user to evaluate the connection.

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23. The device of claim 18, wherein the reservation logic comprises at least one of:

logic for interacting with the peer users via the peer-to-peer interface in order to reserve communication services provided by the peer users; and

10 logic for interacting with the optical communication network via the UNI in order to reserve communication services provided by the optical communication network.

24. The device of claim 14, wherein the optical service logic comprises  
15 bandwidth determination logic for determining bandwidth requirements for a connection.

25. The device of claim 19, wherein the connection establishment logic comprises at least one of:

20 logic for interacting with the optical communication network in order to set up a communication path having specific attributes; and

logic for interacting with the peer users via the peer-to-peer interface in order to set up a communication path end-to-end across the optical communication network.

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26. A system comprising:

an optical communication network; and

a first network user coupled to the optical communication network,

wherein the first network user comprises an optical service agent for

5 obtaining optical communication services from the optical communication network via a user-to-network interface (UNI) and for managing connection establishment and related services for the first network user.

27. The system of claim 26, wherein the optical communication network

10 comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

28. The system of claim 26, wherein the optical service agent is operably coupled to negotiate various connection and connection-related services on

15 behalf of the user application.

29. The system of claim 26, wherein the optical service agent is operably coupled to model at least one connection for the user application.

20 30. The system of claim 26, wherein the optical service agent is operably coupled to reserve connection and connection-related services for the user application.

25 31. The system of claim 26, wherein the optical service agent is operably coupled to establish a connection for the user application.

32. The system of claim 26, wherein the optical service agent is operably coupled to aggregate multiple optical communication paths over a connection.

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33. The system of claim 26, wherein the optical service agent is operably coupled to determine bandwidth requirements for a connection.

34. A method for managing communication establishment and related services for a user in an optical communication system, the method comprising at least one of:

- negotiating various connection and connection-related services on behalf of the user;
- modeling at least one connection for the user;
- reserving connection and connection-related services for the user;
- establishing a connection for the user; and
- aggregating multiple optical communication paths over a connection.

35. The method of claim 34, wherein negotiating various connection and connection-related services on behalf of the user comprises at least one of:

- obtaining a quote for communication services from a number of providers;
- placing a connection out to bid by a number of providers and managing the bidding process for the connection;
- negotiating costs and other parameters for a connection with a number of providers;
- buying connection and connection-related services from a number of providers;
- selling connection and connection-related services; and
- re-selling connection and connection-related services.

36. The method of claim 34, wherein modeling at least one connection for the user comprises at least one of:

- interacting with an optical communication network to obtain information relating to a portion of a connection traversing the optical communication network;
- interacting with peer users to obtain information relating to a portion of the connection beyond the optical communication network;
- compiling information relating to a portion of the connection on a user side of the optical communication network; and



presenting a modeled connection to the user in a form that is convenient for the user to evaluate the connection.

37. The method of claim 34, wherein reserving connection and connection-  
5 related services for the user comprises at least one of:

interacting with an optical communication network to reserve communication services provided by the optical communication network; and

interacting with peer users to reserve communication services provided by the peer users.

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38. The method of claim 34, wherein establishing a connection for the user comprises at least one of:

interacting with an optical communication network in order to set up a communication path having specific attributes; and

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interacting with peer users in order to set up a communication path end-to-end across the optical communication network.

39. The method of claim 34, wherein aggregating multiple optical communication paths over a connection comprises:

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receiving a first request for a first optical communication path;

establishing a connection for the first optical communication path;

receiving a second request for a second optical communication path;

and

mapping the second optical communication path to the connection

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using a predetermined mapping protocol.